



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,353	09/09/2003	Fami Weaver	2285	2116
28005	7590	06/17/2005	EXAMINER	
SPRINT 6391 SPRINT PARKWAY KSOPHT0101-Z2100 OVERLAND PARK, KS 66251-2100			KHAN, SUHAIL	
			ART UNIT	PAPER NUMBER
			2686	

DATE MAILED: 06/17/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/658,353

Applicant(s)

WEAVER ET AL.

Examiner

Suhail Khan

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>1/15/2004</u> | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-7, 10-16, 19-22 and 25-28 rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pat. App. Pub. No. 2004/0203855 to Veerasamy et al.

Referring to **claim 1**, Veerasamy et al disclose a wireless communication system in which a mobile station is engaged in a call over an air interface (page 2, paragraph 24, mobile stations), a method comprising: making a determination that the call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop); and responsively determining a call-drop location of the mobile station (page 3, paragraph 34, call drop position).

Referring to **claim 2**, Veerasamy et al disclose the method of claim 1, wherein the mobile station is communicatively coupled to a network entity over the air interface (page 4, paragraph 46, RF coverage server), the method further comprising sending to the network entity over the air interface a message that defines the call-drop location (page 4, paragraph 46, SMS), the message being sent when the mobile station acquires connectivity with a base station of the wireless communication system (page 3, paragraph 33, BS 101 to BS 103).

Referring to **claim 3**, Veerasamy et al disclose the method of claim 2, further comprising storing the call-drop location in the network entity (page 4, paragraph 46, transfer position data to RF coverage server), the network entity selected from the group consisting of a server and a base station (page 4, paragraph 46, RF coverage server; page 3, paragraph 33, BS).

Referring to **claim 4**, Veerasamy et al disclose the method of claim 2, wherein the message is selected from the group consisting of an HTTP message, a session initiation protocol (SP) message, a short mail session (SMS) message, and a wireless access protocol (WAP) message (page 4, paragraph 46, SMS).

Referring to **claim 5**, Veerasamy et al disclose the method of claim 2, wherein sending to the network entity over the air interface the message defining the call-drop location (page 4, paragraph 46, SMS) comprises sending the message over the air interface from the mobile station to the network entity via a communication path selected from the group consisting of an access channel, an enhanced access channel, and a traffic channel (page 2, paragraph 24, channels).

Referring to **claim 6**, Veerasamy et al disclose the method of claim 2, wherein the mobile station comprises a GPS receiver; wherein the GPS receiver is operable to provide the call-drop location of the mobile station; and wherein determining the call-drop location of the mobile station comprises obtaining from the GPS receiver the call-drop location (page 3, paragraph 34, call drop position; GPS).

Referring to **claim 7**, Veerasamy et al disclose the method of claim 6, further comprising: storing the call-drop location in data storage of the mobile station; and retrieving the call-drop location from the data storage in order to send to the network entity the call-drop location when

the mobile station acquires connectivity with a base station of the wireless communication system (page 3, paragraph 35, RF coverage server builds up a database of service drop/call position information from phones).

Referring to **claim 10**, Veerasamy et al disclose the method of claim 1, wherein making the determination that the call in which the mobile station was engaged has been dropped comprises the base station determining that the call cannot be handed off to another cell-site (page 3, paragraph 33, drop, it is inherent that when a call is dropped handoff can not take place).

Referring to **claim 11**, Veerasamy et al disclose the method of claim 1, wherein the wireless communication system comprises position determining equipment (PDE); and wherein determining the call-drop location comprises causing the PDE to determine the location of the mobile station (page 3, paragraph 34, call drop position; GPS).

Referring to **claim 12**, Veerasamy et al disclose a system comprising: a mobile station (page 2, paragraph 24, mobile stations); a network entity (page 4, paragraph 46, RF coverage server); wherein the mobile station is communicatively coupled to the network entity over an air interface; and wherein the mobile station is arranged to: (i) make a determination that a call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop); (ii) responsively determine a call-drop location of the mobile station (page 3, paragraph 34, call drop position). (iii) when connectivity with the network entity is acquired, send to the network entity over the air interface a message defining the call drop location (page 4, paragraph 46, SMS).

Referring to **claim 13**, Veerasamy et al disclose the system of claim 12, wherein the mobile station comprises a GPS receiver operable to determine the call-drop location of the mobile station (page 3, paragraph 34, call drop position; GPS).

Referring to **claim 14**, Veerasamy et al disclose the system of claim 12, wherein the mobile station being arranged to send to the network entity over the air interface the message comprises the mobile station being arranged to send the message over the air interface from the mobile station to the network entity (page 4, paragraph 46, SMS) via a communication path selected from the group consisting of an access channel, an enhanced access channel, and a traffic channel (page 2, paragraph 24, channels).

Referring to **claim 15**, Veerasamy et al disclose the system of claim 12, wherein the message defining the call-drop location is selected from the group consisting of an HTTP message, a session initiation protocol (SIP) message, a short mail session (SMS) message, and a wireless access protocol (WAP) message (page 4, paragraph 46, SMS).

Referring to **claim 16**, Veerasamy et al disclose the system of claim 12, wherein the mobile station further comprises data storage; and wherein the mobile station is further arranged to: (i) store the call-drop location in the data storage, in response to obtaining from the GPS receiver the call-drop location of the mobile station; and (ii) retrieve the call drop location from the data storage in order to send to the network entity the call-drop location when the mobile station acquires connectivity with a base station of the wireless communication system (page 3, paragraph 35, RF coverage server builds up a database of service drop/call from phones).

Referring to **claim 19**, Veerasamy et al disclose the system of claim 12, wherein the network entity is a server (page 4, paragraph 46, RF coverage server).

Referring to **claim 20**, Veerasamy et al disclose the system of claim 12, wherein the network entity comprises memory; and wherein the network entity is further arranged to store the

call-drop location in the memory to thereby log locations of call drop events (page 3, paragraph 35, RF coverage server builds up a database of service drop/call position information).

Referring to **claim 21**, Veerasamy et al disclose a system comprising: a mobile station (page 2, paragraph 24, mobile stations); a network entity communicatively coupled to the mobile station (page 4, paragraph 46, RF coverage server); wherein the mobile station is arranged to engage in a call over an air interface, and wherein the network entity is arranged to: (i) make a determination that the call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop), (ii) responsively cause position determining equipment (PDE) to determine a call-drop location of the mobile station (page 3, paragraph 34, call drop position; GPS).

Referring to **claim 22**, Veerasamy et al disclose the system of claim 21, wherein the network entity is a base station (page 3, paragraph 33, BS).

Referring to **claim 25**, Veerasamy et al disclose the system of claim 21, wherein the network entity comprises memory; and wherein the network entity is further arranged to store the call-drop location in the memory to thereby log locations of call drop events (page 3, paragraph 35, RF coverage server builds up a database of service drop/call position information).

Referring to **claim 26**, Veerasamy et al disclose the system of claim 21, wherein the network entity being arranged to make the determination that the call in which the mobile station was engaged, has been dropped comprises the network entity being arranged to make the determination that the call cannot be handed off to another a cell-site (page 3, paragraph 33, drop, it is inherent that when a call is dropped handoff can not take place).

Referring to **claim 27**, Veerasamy et al disclose a mobile station comprising: a first routine to make a determination that a call in which the mobile station is engaged has been

Art Unit: 2686

dropped (page 3, paragraph 33, drop); a second routine to responsively determine a call-drop location of the mobile station (page 3, paragraph 34, call drop position); a third routine to make a determination that connectivity is acquired with a network entity over an air interface (page 3, paragraph 33, BS 101 to BS 103), and a fourth routine to send to the network entity over the air interface a message defining a call drop location (page 4, paragraph 46, SMS).

Referring to **claim 28**, Veerasamy et al disclose a base station comprising: a first routine to make a determination that a call in which a mobile station was engaged has been dropped (page 3, paragraph 33, drop); and a second routine to responsively cause position determining equipment (PDE) to determine a call-drop location of the mobile station (page 3, paragraph 34, call drop position; GPS).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8-9, 17-18 and 23-24 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. App. Pub. No. 2004/0203855 to Veerasamy et al, in view of U.S. Pat. No. 6343216 to Kim et al.

Referring to **claim 8**, Veerasamy et al disclose the method of claim 1, for making the determination that the call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop). Veerasamy et al do not disclose determining, at the mobile station, that a duration of bad frames received from the base station is greater than a threshold level.

However, Kim et al disclose ways in which an MS and a BS detect a call drop (col 4, lines 35-40). A call drop is declared if a predetermined number of consecutive bad frames are received (col 4 line 62 – col 5 line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veerasamy et al to show making the determination that the call in which the mobile station was engaged has been dropped comprising determining, at the mobile station, that a duration of bad frames received from the base station is greater than a threshold level, as taught by Kim et al, the motivation being detecting a call drop and notifying the MS user regarding reconnection (Kim et al, col 5, lines 24-26).

Referring to **claim 9**, Veerasamy et al disclose the method of claim 1, for making the determination that the call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop). Veerasamy et al do not disclose determining, at the base station, that a duration of bad frames received from the mobile station is greater than a threshold level.

However, Kim et al disclose ways in which an MS and a BS detect a call drop (col 4, lines 35-40). A call drop is declared if a predetermined number of consecutive bad frames are received (col 4 line 62 – col 5 line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veerasamy et al to show making the determination that the call in which the mobile station was engaged has been dropped comprising determining, at the base station, that a duration of bad frames received from the mobile station is greater than a threshold level, as taught by Kim et al, the motivation being detecting a call drop and notifying the MS user regarding reconnection (Kim et al, col 5, lines 24-26).

Referring to **claim 17**, Veerasamy et al disclose making the determination that the call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop). Veerasamy et al do not disclose that the mobile station is arranged to make the determination that a duration of bad frames received from the base station is greater than a threshold level.

However, Kim et al disclose ways in which an MS and a BS detect a call drop (col 4, lines 35-40). A call drop is declared if a predetermined number of consecutive bad frames are received (col 4 line 62 – col 5 line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veerasamy et al to show the mobile station being arranged to make the determination that the call in which the mobile station was engaged has been dropped comprises the mobile station being arranged to make the determination that a duration of bad frames received from the base station is greater than a threshold level, as taught by Kim et al, the motivation being detecting a call drop and notifying the MS user regarding reconnection (Kim et al, col 5, lines 24-26).

Referring to **claim 18**, Veerasamy et al disclose the system of claim 17 (page 3, paragraph 33, drop). Veerasamy et al do not disclose that the threshold level is twenty bad frames.

However, Kim et al disclose a call drop if 80 consecutive bad frames are received (col 4 line 62 – col 5 line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veerasamy et al to show that the threshold level is twenty bad frames, as

Art Unit: 2686

taught by Kim et al, the motivation being detecting a call drop and notifying the MS user regarding reconnection (Kim et al, col 5, lines 24-26).

Referring to **claim 23**, Veerasamy et al disclose making the determination that the call in which the mobile station was engaged has been dropped (page 3, paragraph 33, drop). Veerasamy et al do not disclose that the network entity is arranged to make the determination that a duration of bad frames received from the base station is greater than a threshold level.

However, Kim et al disclose ways in which an MS and a BS detect a call drop (col 4, lines 35-40). A call drop is declared if a predetermined number of consecutive bad frames are received (col 4 line 62 – col 5 line 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veerasamy et al to show the network entity being arranged to make the determination that the call in which the mobile station was engaged has been dropped comprises the network entity being arranged to make the determination that a duration of bad frames received from the mobile station is greater than a threshold level, as taught by Kim et al, the motivation being detecting a call drop and notifying the MS user regarding reconnection (Kim et al, col 5, lines 24-26).

Referring to **claim 24**, Veerasamy et al disclose the system of claim 21 (page 3, paragraph 33, drop). Veerasamy et al do not disclose that the threshold level is twenty bad frames.

However, Kim et al disclose a call drop if 80 consecutive bad frames are received (col 4 line 62 – col 5 line 1).

Art Unit: 2686

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Veerasamy et al to show that the threshold level is twenty bad frames, as taught by Kim et al, the motivation being detecting a call drop and notifying the MS user regarding reconnection (Kim et al, col 5, lines 24-26).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to Dropped Calls.

U.S. Pat. No. 6459695 to Schmitt

U.S. Pat. App. Pub. No. 2002/0068586 to Chun et al

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suhail Khan whose telephone number is (703) 305-8730. The examiner can normally be reached on M-F from 7:30 am to 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached at (703) 305-4379. The fax number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

sk

Marsha D Banks-Harold

MARSHA D. BANKS-HAROLD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600